

Docket No. 071949-1314  
Patent

For the convenience of the Examiner, a complete set of pending claims follows.

1-73 (cancelled).

74. (Previously amended) An assay device for determining the presence or amount of a plurality of different target ligands in a sample, the device comprising:

a diagnostic element comprising a capillary space through which said sample flows, comprising (i) a non-absorbent surface within said capillary space, and (ii) a plurality of discrete capture zones on said nonabsorbent surface, each discrete capture zone comprising a capture element that binds one target ligand in said plurality of different target ligands.

75. (Previously amended) The assay device of claim 74, comprising at least 50 said discrete capture zones, corresponding to at least 50 different target ligands.

76. (Previously added) The assay device of claim 74, wherein said nonabsorbent surface comprises a width dimension substantially perpendicular to the direction of fluid flow through the capillary space, and wherein each said discrete capture zone spans said width dimension.

77. (Previously added) The assay device of claim 74, wherein said capture element is selected from the group consisting of an antibody or binding fragment thereof, a nucleotide sequence, an enzyme, a chelator, and a biosensor.

78. (Previously amended) The assay device of claim 74, wherein said device further comprises a chamber fluidly connected to said diagnostic element, and a time gate that delays fluid flow between said chamber and said diagnostic element until binding of a component from a fluid to a zone of said time gate renders said zone sufficiently hydrophilic to permit fluid flow over or through said time gate.

79. (Previously added) The assay device of claim 74, wherein said discrete capture zones comprise particles immobilized thereon, wherein said particles comprise said capture element

Docket No. 071949-1314  
Patent

immobilized thereon.

80. (Previously added) The device of claim 79 wherein the particles are latex.
81. (Previously added) The device of claim 79 wherein the particles are polystyrene.
82. (Previously added) The device of claim 79 wherein the particles are nanoparticles.
83. (Previously added) The device of claim 82 wherein the nanoparticles comprise silica, zirconia, alumina, titania, ceria, metal sols, or polystyrene.
84. (Previously added) The device of claim 82 wherein the nanoparticles have sizes in a range from about 1 nm to 100 nm.
85. (Previously added) The device of claim 82 wherein the nanoparticles are immobilized on said nonabsorbent surface through adsorption or covalent bonds.
86. (Previously added) The device of claim 79 wherein said particles are immobilized on said nonabsorbent surface by magnetic means, hydrophobic means, hydrogen bonding, electrostatic means, or entrapment.
87. (Previously added) The device of claim 79, wherein said particles have diameters ranging from about 0.1 mm to 10 mm.
88. (Previously added) The device of claim 79, wherein said receptor is immobilized on a surface of the particle.
89. (Previously amended) A method for determining the presence or amount of a plurality of different target ligands in a sample, the method comprising:
- contacting the diagnostic element of claim 1 with
- (i) a sample, and

Docket No. 071949-1314  
Patent

(ii) a labeled reagent that binds to said plurality of target ligands,

whereby said sample and said labeled reagent flow through said capillary space for capture of each said different target ligand at its corresponding capture zone; and

generating a plurality of detectable signals from label bound to each different target ligand at its corresponding capture zone, whereby said signals are related to the presence or amount of said plurality of different target ligands in said sample.

90. (Previously amended) The method of claim 89, wherein said diagnostic element comprises at least 50 said discrete capture zones, corresponding to at least 50 different target ligands.

91. (Previously added) The method of claim 89, wherein said nonabsorbent surface comprises a width dimension substantially perpendicular to the direction of fluid flow through the capillary space, and wherein each said discrete capture zone spans said width dimension.

92. (Previously added) The method of claim 89, wherein said capture element is selected from the group consisting of an antibody or binding fragment thereof, a nucleotide sequence, an enzyme, a chelator, and a biosensor.

93. (Previously added) The method of claim 89, wherein said discrete capture zones comprise particles immobilized thereon, wherein said particles comprise said capture element immobilized thereon.

94. (Previously added) The method of claim 89, wherein said labeled reagent is a fluorescently labeled reagent.

95. (Previously amended) A method for determining the presence or amount of a plurality of different target ligands in a sample, the method comprising:

contacting the diagnostic element of claim 74 with

Docket No. 071949-1314  
Patent

(i) a sample, and

(ii) a plurality of ligand analogue conjugates, each ligand analogue conjugate corresponding to one of said plurality of different target ligands,

whereby said sample and said plurality of ligand analogue conjugates flow through said capillary space, whereby each different target ligand competes with its corresponding ligand analogue conjugate for capture at its corresponding capture zone; and

generating a plurality of detectable signals from ligand analogue conjugate bound at its corresponding capture zone, whereby said signals are related to the presence or amount of said plurality of different target ligands in said sample.

96. (Previously amended) The method of claim 95, wherein said diagnostic element comprises at least 50 said discrete capture zones, corresponding to at least 50 different target ligands.

97. (Previously added) The method of claim 95, wherein said nonabsorbent surface comprises a width dimension substantially perpendicular to the direction of fluid flow through the capillary space, and wherein each said discrete capture zone spans said width dimension.

98. (Previously added) The method of claim 95, wherein said capture element is selected from the group consisting of an antibody or binding fragment thereof, a nucleotide sequence, an enzyme, a chelator, and a biosensor.

99. (Previously added) The method of claim 95, wherein said discrete capture zones comprise particles immobilized thereon, wherein said particles comprise said capture element immobilized thereon.

100. (Previously added) The method of claim 95, wherein said ligand analogue conjugate is a fluorescently labeled ligand analogue conjugate.

Docket No. 071949-1314  
Patent

101. (Previously added) An assay device for determining the presence or amount of a plurality of different target ligands in a sample, the device comprising:

a diagnostic element comprising a capillary space through which said sample flows, comprising (i) a non-absorbent surface within said capillary space, and (ii) a plurality of discrete capture zones on said nonabsorbent surface, each discrete capture zone comprising a capture element that binds one target ligand in said plurality of different target ligands, wherein said nonabsorbent surface comprises a width dimension substantially perpendicular to the direction of fluid flow through the capillary space, and wherein each said discrete capture zone spans said width dimension.

102. (Previously added) The assay device of claim 101, wherein said capture element is selected from the group consisting of an antibody or binding fragment thereof, a nucleotide sequence, an enzyme, a chelator, and a biosensor.

103. (Previously added) The assay device of claim 101, wherein said device further comprises a chamber fluidly connected to said diagnostic element, and a time gate that delays fluid flow between said chamber and said diagnostic element until binding of a component from a fluid to a zone of said time gate renders said zone sufficiently hydrophilic to permit fluid flow over or through said time gate.

104. (Previously added) The assay device of claim 101, wherein said discrete capture zones comprise particles immobilized thereon, wherein said particles comprise said capture element immobilized thereon.

105. (Previously added) The device of claim 104 wherein the particles are latex.

106. (Previously added) The device of claim 104 wherein the particles are polystyrene.

107. (Previously added) The device of claim 104 wherein the particles are nanoparticles.

Docket No. 071949-1314  
Patent

108. (Previously added) The device of claim 107 wherein the nanoparticles comprise silica, zirconia, alumina, titania, ceria, metal sols, or polystyrene.

109. (Previously added) The device of claim 107 wherein the nanoparticles have sizes in a range from about 1 nm to 100 nm.

110. (Previously added) The device of claim 107 wherein the nanoparticles are immobilized on said nonabsorbent surface through adsorption or covalent bonds.

111. (Previously added) The device of claim 107 wherein said particles are immobilized on said nonabsorbent surface by magnetic means, hydrophobic means, hydrogen bonding, electrostatic means, or entrapment.

112. (Previously added) The device of claim 104, wherein said particles have diameters ranging from about 0.1 mm to 10 mm.

113. (Previously added) The device of claim 104, wherein said receptor is immobilized on a surface of the particle.